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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/656,884

Applicant(s)

ZIGMOND ET AL.

Examiner

KUNAL LANGHNOJA

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-57 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 40-49, Akins teaches "a content protector to create multiple scrambled program streams from a single program stream according to a key, and a content decrypter to receive the multiple scrambled program streams and the key and decode the multiple scrambled program streams into a single program stream according to the key", as disclosed in paragraphs 0042 0046, 0052, 0067 and 0069.

Wherein, headend sends plurality of transport streams 202 to PVR 110. Each transport stream is made up of stream of packets 204. Digital services can be retrieved from the streams on packets 204. Portion of the digital service is encrypted within packets 204. Each packet carry key identifier and DKM 226, which corresponds to decrypting fraction minutes of service instead of entire service. Since, plurality of packets carry encrypted digital services, which can be retrieved entirely by legitimate subscriber reads on claimed "multiple scrambled program streams from a single program stream."

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 14-23, 26-28, and 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Kliger et al (United States Patent Application Publication 20040177381).

Regarding claim 14, Kliger teaches “a system”, comprising:

“a computing hub [24] for receiving and storing multimedia content (Figure 4);”

“a set-top box [20] coupled with the computing hub, wherein the set-top box receives streaming Moving Picture Experts Group video modulated on coaxial cable rather than over an Internet protocol-based local area network and wherein the set-top box sends data to the hub on an out-of-band channel and receives data from the hub on an in-band channel (i.e. STB and home media server communicate over different band of frequencies).” (Figure 4; Paragraphs 0021-25, 0027)

Claim 15 is rejected wherein “the set-top box further receives multimedia content from the computing hub on the in-band channel.” (Paragraphs 0022-23, 0024, and 0025)

Claim 16 is rejected wherein “the set-top box is coupled with the hub and coupled with a multimedia content source in order to receive multimedia content directly from the multimedia content source.” (Paragraphs 0021-22)

Claim 17 is rejected wherein “wherein the multimedia content source is a headend.” (Paragraphs 0021, and 0024)

Claim 18 is rejected wherein "the hub is coupled with the multimedia content source." (Figure 3)

Claim 19 is rejected wherein "a radio frequency filter [48] blocks one or more frequencies of a signal from the multimedia content source to the set-top box and to the hub." (Paragraphs 0024-25)

Claim 20 is rejected wherein "the set-top box sends data to the hub on an out-of-band channel that uses a frequency blocked by the radio frequency filter [48] and receives data from the hub on an in-band channel that uses a frequency blocked by the radio frequency filter." (Paragraphs 0022-23)

Claim 21 is rejected wherein "the radio frequency filter blocks data sent on the out-of-band channel from being sent over a communicative coupling to the multimedia content source and wherein the radio frequency filter blocks data sent on the in-band channel from being sent over the communicative coupling to the multimedia content source." (Paragraphs 0024-25)

Claim 22 is rejected wherein "the radio frequency filter prevents communications back and forth between the hub and the set-top box on the blocked frequencies from leaving the system." (Paragraphs 0022-25)

Claim 23 is rejected wherein "the set-top box is coupled with the computing hub, the computing hub is coupled with a multimedia content source, and the set-top box is not coupled directly with the multimedia content source." (Figure 3)

Claim 26 is rejected wherein "a hub-side integration engine in the computing hub to facilitate communication with the set-top box." (Paragraphs 0022-24)

Claim 27 is rejected wherein "the hub-side integration engine further comprises an adapter to adapt upstream out-of-band data from the set-top box to the computing hub and to adapt downstream in-band data and multimedia content from the computing hub to the set-top box. (Paragraphs 0022-25)

Claim 28 is rejected wherein "the adapter tunes data from the set-top box to the out-of-band frequency for transmission to the computing hub and tunes data and multimedia content from the computing hub to the in-band frequency for transmission to the set-top box." (Paragraphs 0022-25)

Regarding claim 33, Kliger teaches "an electronic notching filter", comprising:
"an incoming filter [48] to produce a band of blocked frequencies in an incoming stream of multimedia signals, wherein the incoming filter blocks signals having one of the blocked frequencies from entering a media network [40] from a multimedia head-end (i.e. 55-860 Mhz for video signals from cable network 10);" (Paragraphs 0024-25)
and

"an outgoing filter [48] to block signals that originate in the media network [40] and prevent one of the blocked frequencies from leaving the media network [40], wherein the range of blocked frequencies is from at least about 5 megahertz to most about 42 megahertz." (Paragraphs 0024-25)

Regarding claim 34, Kliger teaches "one radio frequency filter [48] is both the incoming filter and the outgoing filter." (Figure 4; Paragraphs 0024-25)

4. Claim 40-49 are rejected under 35 U.S.C. 102(e) as being anticipated by Akins et al (United States Patent Application Publication 2004/0177369), hereinafter referenced as Akins.

Regarding claim 40, Akins discloses conditional access personal video recorder. In addition, Akins discloses control system located at head-end 102, encrypts digital services and legitimate subscribers of the STS 100 have the necessary entitlements and keys for decrypting the payload 210, reads on claimed "a content protector to create multiple scrambled program streams from a single program stream according to a key, and a content descriptor to receive the multiple scrambled program streams and the key and decode the multiple scrambled program streams into a single program stream according to the key." Wherein, control system 332 encrypts the digital services prior to transmission to the subscribers reads on claimed "a content protector to create multiple scrambled program streams from a single program stream", and subscribers must have correct entitlements and keys reads on claimed "according to a key", received encrypted digital services are decrypted using entitlements and keys reads on claimed "decode the multiple scrambled program streams into a single program stream according to the key", as disclosed in paragraphs 0042 0046, 0052, 0067 and 0069.

Regarding claim 41, Akins discloses everything claimed (see claim 40), in addition, Akins discloses multi-transport stream receiver transmitter 328 is adapted to encrypt content prior to modulating and transmitting based on instructions sent from the system controller 332. Based upon the instructions received from the system controller

332, the multi-transport stream receiver-transmitter 328 encrypts some or all of the programs included in the input transport streams 340 and then includes the encrypted programs in the output transport streams 342. Some of the programs included in input transport stream 340 do not need to be encrypted and in that case the system controller 332 instructs the multi-transport stream transmitter-receiver 328 to transmit those programs without encryption, which reads on claimed "the content protector places an unscrambled video frame of program content in any one of the scrambled program streams and places an associated scrambled video frame of program content in each of the remaining multiple scrambled program streams, and the identity of the scrambled program stream receiving the unscrambled video frame is recorded as a corresponding part of the key." Wherein, multi-transport stream receiver/transmitter 328 sends both the encrypted and not encrypted content using combiner 330 reads on claimed "unscrambled video frame of program content in any one of the scrambled program streams and places an associated scrambled video frame of program content in each of the remaining multiple scrambled program streams", and encrypted content have keys for decrypting keys embedded so its easy for right full owner to view digital content reads on claimed "and the identity of the scrambled program stream receiving the unscrambled video frame is recorded as a corresponding part of the key", as disclosed in paragraph 0052, 0066, and 0076.

Regarding claim 42, Akins discloses everything claimed (see claim 41), in addition, Akins discloses the DSCT-PVR 110 processes the decryption key material DKM 226 of the ECM 214 is using a key identified by the key Identifier 224 to generate

a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service reads on claimed "receiving the multiple scrambled program streams and the key: the content decrypter reads the key to determine for a current part of the program stream which of the multiple scrambled program streams has the current unscrambled video frame of program content." Wherein, transport stream 202 including encrypted digital services reads on claimed "multiple scramble program streams", decryption key reads on claimed "key", and control words for decrypting a digital service among other digital content in transport stream reads on claimed "decrypter reads the key to determine for a current part of the program stream which of the multiple scrambled program streams has the current unscrambled video frame of program content", as disclosed in paragraph 0052.

Regarding claim 43, Akins discloses everything claimed (see claim 42), in addition, Akins discloses instead of using a single encryption key for an entire service, a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service reads on claimed "sets of consecutive unscrambled video frames and corresponding sets of consecutive scrambled video frames are placed in the multiple scrambled program streams and the key is read at regular time intervals to determine which scrambled program stream has the next set of unscrambled video frames, wherein the key is a

binary number provided to a set-top box from a hub." Wherein, some digital service is encrypted along with not encrypted content in transport stream 202 reads on claimed "sets of consecutive unscrambled video frames and corresponding sets of consecutive scrambled video frames are placed in the multiple scrambled program streams", and keys for the encrypted digital services are inserted at different intervals per minute reads on claimed "key is read at regular time intervals to determine which scrambled program stream has the next set of unscrambled video frames", as disclosed in (Figure 2; paragraphs 0044-45, 0052, and 0066.)

Regarding claim 44, Akins discloses everything claimed (see claim 43), in addition, Akins discloses instead of using a single encryption key for an entire service, a digital service is encrypted using encryption keys that are changed multiple times per minute, which reads on claimed "the key is read every one-half second." Wherein, changing encryption key multiple times per minute reads on claimed "one-half second", as disclosed in paragraph 0052.

Regarding claim 45, Akins discloses everything claimed (see claim 40), in addition, Akins discloses MPEG packets 204 also include an adaptation field 208 and a payload 210. The adaptation field 208 and payload 210 are separately variable in length, but the aggregate length is 184 bytes. Furthermore, the content(transport stream 202, MPEG packets 204) sent from the headed is encrypted based on information sent from Control system 332 to multi-transport stream receiver-transmitter 328, which reads on claimed "a key generator in the content protector, wherein the key generator makes keys of a selected length." Wherein, payload 210 includes decryption information, which

is a variable length reads on claimed "keys of a selected length", and control system 332 reads on claimed "key generator", as disclosed in paragraphs 0045 and 0077.

Regarding claim 46, Akins discloses everything claimed (see claim 45), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content decrypter changes keys at regular time intervals." Wherein, decryptors 236 located in DSCT-PVR 110 decrypt digital services from the decryption information. Furthermore, encryption keys are encrypted at multiple times per minute and decryptors have to use the change keys and use correct keys in order to decrypt the digital service from head end reads on claimed "changes keys at regular time intervals", as disclosed in paragraph 0052.

Regarding claim 47, Akins discloses everything claimed (see claim 46), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a

single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content decrypter changes keys every ten seconds." Wherein, digital service is encrypted using keys multiple times per minute, decryptors 236 located in DSCT-PVR 110 have to use the keys to decrypt content multiple times per minute reads on claimed "changes keys every ten seconds", as disclosed in paragraph 0052.

Regarding claim 48, Akins discloses everything claimed (see claim 40), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 issuing a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one

having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content protector encrypts the key according to a strong encryption technique and the content decrypted decodes a received key." Wherein, digital service is encrypted using encryption keys that are changed multiple times and it is tough for unauthorized subscriber to break the key reads on claimed "strong encryption technique", and DSCT-PVR 110 decodes the encryption key received from the head end to decrypt digital service reads on claimed "content decrypted decodes a received key", as disclosed in paragraph 0052.

Regarding claim 49, Akins discloses everything claimed (see claim 40), in addition, Akins discloses a digital service is encrypted using encryption keys that are changed multiple times per minute. Thus, if an unauthorized person (pirate) obtains a single decryption key the pirate can only access a fraction of a minute of the service, instead of the entire service. Decryption information is transmitted from the headend 102 to the DSCT-PVR 110 using Key Identifier 224 and DKM 226. If the DSCT-PVR 110 is entitled to permit access to the service, the DSCT-PVR 110 processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service, which reads on claimed "the content protector streams one continuous key to the content decrypter." Wherein, DSCT-PVR 110

processes the DKM 226 of the ECM 214 is using a key identified by the Key Identifier 224 to generate a single decryption key, control word. Thus, a series of different ECMs 216, each one having a different DKM 226, are multiplexed into the transport stream 202 so as to provide the DSCT-PVR 110 with the necessary information for generating the control words for decrypting the digital service reads on claimed "one continuous key to the content decrypter", as disclosed in paragraph 0052.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger et al (US PG Publication 20040177381), in view of Grauch et al (US Patent 6,983,478).

Regarding claim 1, Kliger teaches "a method for creating a two-way communication from two unidirectional data channel", comprising:

"communicatively coupling a set-top box [20] with a hub [24] of a media network, wherein the set-top box [20] receives a streaming Moving Picture Experts Group (MPEG) video modulated on a coaxial cable rather than over an Internet protocol-based local area network;" (Figure 3; Paragraphs 0021,0028)

"filtering signals received by the media network [24] from a multimedia headend [10] to provide one or more available frequencies for communication between the set-

top box and the hub (i.e. two band frequencies to communicate);" (Paragraphs 0024-0025, and 0027)

"filtering signals transmitted from the media network [24] to the multimedia headend to prevent media network signals of the one or more available frequencies for communication from leaving the media network;" (Paragraphs 0025)

"tuning the set-top box [20] to a frequency other than the one or more available frequencies for communication between the set-top box [20] and the hub [24] to receive the signals from the multimedia headend [10] on the out-of-band channel;" (Paragraphs 0024-25) and

"tuning the set-top box to receive Quadrature Amplitude Modulation (QAM) modulated MPEG data and a multimedia content from the hub [24] on an in-band channel;" (Paragraphs 0024-25, 0032)

"wherein the filtering is performed by a notching filter [48];" (Paragraph 0025)

"wherein the hub is a personal computer [24]." (Figure 4; paragraph 0027)

"tuning the set-top box [20] to the one or more available frequencies for communication to data to the hub [24] on an out-of-band channel;" (Paragraphs 0025-26) However, the reference is silent with respect to "sending ALOHA data using a Quadrature Phase Shift Keying (QPSK) demodulator."

In the similar field of endeavor, Grauch teaches "sending ALOHA data using a Quadrature Phase Shift Keying (QPSK) demodulator." (Figure 4A, 4B; Col.18 lines 11-31) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kliger by specifically providing "sending ALOHA data

using a Quadrature Phase Shift Keying (QPSK) demodulator", for the common knowledge purpose of sending/receiving signals between hub and STB using contention-based standard transport protocol.

Claim 2 is rejected wherein "tuning the set-top box [20] to receive multimedia content from the hub [24] on the in-band channel." (Paragraph 0032)

Claim 3 is rejected wherein "communicatively coupling the set-top box [20] with a programming content source in addition to communicatively coupling the set-top box with the hub [24]." (Paragraphs 0021-22)

Claim 4 is rejected wherein "the programming content source [10] is a headend." (Paragraphs 0021, and 0024)

Claim 5 is rejected wherein "the communicative coupling further includes connecting coaxial cable between the set-top box and the hub." (Paragraph 0024)

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Grauch, further in view of Gray et al (US PG Publication 20040268401).

Regarding claim 6, Kliger and Grauch, the combination teaches "communicatively coupling media network nodes [40] with the hub [24]," (Figure 3) However, the reference is silent with respect to "a media network node receives

streaming Moving Picture Experts Group video over an Internet protocol-based local area network.”

In the similar field of endeavor, Gray teaches “a media network node [503] receives streaming Moving Picture Experts Group video over an Internet protocol-based local area network.” (Paragraph 0065) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger and Grauch, the combination by providing “a media network node receives streaming Moving Picture Experts Group video over an Internet protocol-based local area network” for the common knowledge purpose of providing services to multiple equipments within customer premises.

Regarding claim 7, Kliger and Grauch, the combination teaches “the communicatively coupling media network nodes [40] further includes communicatively coupling the media network nodes [40] to the hub [24]” and “coupling the set-top box [24] to the hub [24] with coaxial cable” (Kliger: Figure 3; Paragraphs 0024) However, the combination is silent with respect to “coupling network node to hub with Internet protocol-based local area network cable.”

In the similar field of endeavor, Gray teaches “coupling network node to hub with Internet protocol-based local area network cable.” (Paragraphs 0065) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger and Grauch, the combination by providing “coupling network node to hub with Internet protocol-based local area network cable” for the common knowledge purpose of providing services to multiple equipments within customer premises.

Regarding claim 8, Kliger and Grauch, the combination teaches "content between the hub and the set-top box using the out-of-band and the in-band channels" (Paragraphs 0025-26) However, the reference is silent with respect to "simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network."

In the similar field of endeavor, gray teaches "simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network." (Paragraphs 0005, 0065-66, and 0113) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger and Grauch, the combination by providing " simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network" for the common knowledge purpose of providing services to multiple equipments within customer premises without minimal delay.

8. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Grauch, further in view of Akiyama et al (US PG Publication 20020001386).

Regarding claim 9, Kliger and Grauch, the combination teaches everything claimed (see claim 1). The combination teaches "programming content to be sent from the hub to the set-top box." (Kliger: Paragraphs 0021-23) However, the combination is silent with respect to "sent content is encrypted."

In the similar field of endeavor, Akiyama teaches "sent content is encrypted" (Paragraphs 0093, and 101). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination by providing "sent content is encrypted" for the common knowledge purpose of preventing illegal copying of the data content sent to customers.

Regarding claim 10, Kliger and Grauch, the combination teaches everything claimed (see claim 9). However the combination is silent with respect to "sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key."

In the similar field of endeavor Akiyama teaches " sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key.(i.e. multiple packets can be unscrambled to achieve digital services using key) " (Paragraphs 0100-102) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by proving "sending multiple program streams each representing a different scrambled version of content, wherein the entire content can be derived from the multiple program streams using a key", as taught by Akiyama, for purpose of preventing illegally copying of the data content sent to customers.

Regarding claim 11, Kliger and Grauch, the combination teaches everything claimed (see claim 10). The combination is silent with respect to "for corresponding

parts of each of the multiple program streams only one of the program streams has unscrambled content for that corresponding part.”

In the similar field of endeavor, Akiyama teaches “for corresponding parts of each of the multiple program streams only one of the program streams has unscrambled content for that corresponding part.” (Figure 4; Paragraphs 0100-0102) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, “corresponding parts of each of the multiple program streams only one of the program streams has unscrambled content for that corresponding part”, as taught by Akiyama, for purpose of sending content data to authorized subscribed customers and prevent tampering.

Regarding claim 12, Kliger and Grauch, the combination teaches everything claimed (see claim 11). The combination is silent with respect to “corresponding parts of each of the multiple program streams a part of the key associated with the corresponding parts of each of the multiple program streams indicates which one program stream has the unscrambled content for that corresponding part.”

In the similar field of endeavor, Akiyama teaches “corresponding parts of each of the multiple program streams a part of the key associated with the corresponding parts of each of the multiple program streams indicates which one program stream has the unscrambled content for that corresponding part.” (Paragraphs 0100-0102) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, “corresponding parts of each of the multiple program streams a part of the key associated with the

corresponding parts of each of the multiple program streams indicates which one program stream has the unscrambled content for that corresponding part", as taught by Akiyama, for purpose of sending content data to authorized subscribed customers and prevent tampering.

Regarding claim 13, Kliger and Grauch, the combination teaches everything claimed (see claim 11). The combination is silent with respect to "the multiple program streams consist of two program streams, the key consists of a binary sequence, and each digit of the binary sequence distinguishes between the two program streams."

In the similar field of endeavor, Akiyama teaches " the multiple program streams consist of two program streams, the key consists of a binary sequence, and each digit of the binary sequence distinguishes between the two program streams." (Paragraph 0089) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, "multiple program streams consist of two program streams, the key consists of a binary sequence, and each digit of the binary sequence distinguishes between the two program streams", as taught by Akiyama, for purpose of sending content data to subscribers based on their channel contract information.

9. Claims 35-37 rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Gray, further in view of Saladino et al (US PG Publication 20030014764).

Regarding claim 35, Kliger teaches "an adapter, comprising: "a tuner to tune an out-of-band channel of a set-top box to a frequency selected for communication over a media network," (Paragraphs 0022-24)and

"hub that communicates over the out-of-band channel and the in-band channel with the set-top box and one or more other set-top boxes;" (Paragraphs 0022-25) However, the reference is silent with respect to "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub;

a quadrature amplitude modulation (QAM) modulator to receive and modulate data and multimedia content from the hub; and

an upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconverter modulated data and multimedia content signals to the set-top box." And "wherein the media network has a hub that communicates over an Internet Protocol-based local area network with one or more network media nodes."

In the similar field of endeavor, Gray teaches "wherein the media network has a hub that communicates over an Internet Protocol-based local area network with one or more network media nodes." (Paragraphs 0005, 0065-66, and 0113) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger by providing " wherein the media network has a hub that communicates over an Internet Protocol-based local area network with one or more network media nodes" for the common knowledge purpose of providing services to multiple equipments within customer premises.

In the similar field of endeavor, Saladino teaches "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub" (Paragraph 0065), "a quadrature amplitude

modulation (QAM) modulator to receive and modulate data and multimedia content from the hub" (Paragraph 0061) "upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconverter modulated data and multimedia content signals to the set-top box." (Paragraph 0058)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Kliger by specially providing, "a quadrature phase shift keying (QPSK) demodulator coupled with the tuner to demodulate upstream data signals from the tuner to the hub; a quadrature amplitude modulation (QAM) modulator to receive and modulate data and multimedia content from the hub; and an upconverter coupled with the quadrature amplitude modulation (QAM) modulator to upconvert modulated data and multimedia content signals to the set- top box", as taught by Saladino, for purpose of sending/receiving signals between service providers and subscribers.

Regarding claim 36, Kliger and Saladino, the combination discloses everything claimed, as applied above, (see claim 35), however, the combination fails to disclose QAM modulator comprises an Annex B type. However, the examiner takes OFFICIAL NOTICE of the fact that it was well known in the art to provide QAM modulator comprises an Annex B type.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination by specifically providing QAM modulator comprises an Annex B type, for the purpose of meeting digital cable standards in different countries.

Regarding claim 37, Kliger and Gray, the combination teaches everything claimed (see claim 35). The combination is silent with respect to "a QPSK modulator/demodulator coupled with the tuner to perform two-way data communication between the set-top box and the hub."

In the similar field of endeavor, Saladino teaches "a QPSK modulator/demodulator coupled with the tuner to perform two-way data communication between the set-top box and the hub." (Paragraphs 0061 and 0065)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by specially providing, "a QPSK modulator/demodulator coupled with the tuner to perform two-way data communication between the set-top box and the hub", as taught by Saladino, for purpose of sending/receiving signals between service providers and subscribers.

10. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Gray, in view of Saladino, further in view of Naimpally et al (United States Patent Application Publication 2003/0106056).

Regarding claim 38, Kliger, Gray, Saladino, the combination teaches everything claimed (see claim 37). The combination is silent with respect to "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box."

In the similar field of endeavor, Naimpally teaches "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box." (Paragraphs 0024 and 0029) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify combination by specially providing, "a Moving Picture Experts Group (MPEG) decoder and a National Television System Committee (NTSC) video standard encoder to receive video content from the hub and a radio frequency modulator coupled with the MPEG decoder/NTSC encoder to modulate video content signals for the set-top box", as taught by Naimpally, for purpose of sending digital and analog signals to customers from service providers.

11. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Gray, in view of Saladino, further in view of Grauch.

Regarding claim 39, Kliger, Gray, Saladino, the combination teaches everything claimed (see claim 35). The combination is silent with respect to "the set-top box sends data to the hub using an ALOHA protocol."

In the similar field of endeavor, Grauch teaches "the set-top box sends data to the hub using an ALOHA protocol." (Figure 4A, 4B; Col.18 lines 11-31) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kliger by specifically providing "sending ALOHA data using a Quadrature Phase Shift Keying (QPSK) demodulator", for the common knowledge

purpose of sending/receiving signals between hub and STB using contention-based standard transport protocol.

12. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Rodriguez et al (US PG Publication 20020059623).

Regarding claim 50, Kliger teaches “a method of using a media network having a hub [24] to send multimedia content to media network nodes and to set-top boxes [20] in the media network, wherein the set-top boxes [20] receive streaming Moving Picture Experts Group video modulated on coaxial cable rather than over an Internet protocol-based local area network” (Paragraphs 0021-25), comprising

“tuning the set-top boxes to selected frequencies reserved for communication in the media network;” (Paragraphs 0021-23) The reference teaches

“from hub on an out-of band channel of a set-top box using one of selected frequencies” (Paragraphs 0022-25, 0027), and

“from the hub on an in-band channel of the set-top box using one of the selected frequencies” (Paragraphs 0022-25). However, the reference is silent with respect to “requesting a list of programs; receiving a list of programs; requesting program content; receiving a confirmation of the requesting program content; and receiving the program content.”

In the similar field of endeavor, Rodriguez teaches “requesting a list of programs; receiving a list of programs (i.e. requesting EPG and receiving EPG); requesting program content; receiving a confirmation of the requesting program content; and receiving the program content (i.e. tuning into program and program being displayed on

television)." (Paragraphs 0028, and 0055) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kliger by specifically providing "requesting a list of programs; receiving a list of programs; requesting program content; receiving a confirmation of the requesting program content; and receiving the program content", for the common knowledge purpose of allowing user to get more services regarding programs as well as displaying them on display device.

13. Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Moeller et al (United States Patent 5,828,370).

Regarding claim 51, Kliger teaches "a method of using a media network having a hub to send multimedia content to media network nodes and to set-top boxes in the media network" (Paragraphs 0021-25), comprising:

"tuning the set-top boxes to selected frequencies reserved for communication in the media network"; (paragraphs 0021-23) The reference teaches "an out-of-band channel of a set-top box using one of the selected frequencies;" "the in-band channel of the set-top box using one of the selected frequencies;" (Paragraphs 0021-25, 0027) However, the reference is silent with respect to "requesting a trick mode; receiving a confirmation of the requesting a trick mode and receiving the program content in the trick mode."

In the similar field of endeavor, Moeller teaches "requesting a trick mode; receiving a confirmation of the requesting a trick mode and receiving the program content in the trick mode." (Col.7 lines 12-43) Therefore, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to modify Kliger by specifically providing “requesting a trick mode; receiving a confirmation of the requesting a trick mode and receiving the program content in the trick mode”, for the common knowledge purpose of allowing user to fast-forward or jump in position within a desired movie or video stream.

14. Claims 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger.

Regarding claim 52, Kliger teaches “filtering signals received by the media network [40] to provide one or more clear frequencies for communicating between a set-top box [20] and a hub [24] of a media network;” (Paragraphs 0022-23)

“tuning the set-top box to send data to the hub on an out-of-band channel; and tuning the set-top box to receive data from the hub on an in-band channel” (Paragraphs 0022-25) However, the reference is silent with respect to “one or more computer readable media containing instructions that are executable by a computer to perform actions.” However, the examiner takes OFFICIAL NOTICE of the fact that it was well known in the art at the time the invention was made to modify Kliger and specially providing “one or more computer readable media containing instructions that are executable by a computer to perform actions” for the common knowledge purpose of software implementation.

Claim 53 is rejected wherein “tuning the set-top box to receive multimedia content from the hub on the in- band channel.” (Paragraph 0032)

Claim 54 is rejected wherein "tuning the set-top box to receive multimedia content from the hub on the in- band channel." (Paragraph 0032)

15. Claim 24-25 and 55 rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Gray.

Regarding claims 24 and 55, Kliger teaches everything claimed (see claims 14 and 52). The reference teaches "content between the hub and the set-top box using the out-of-band and the in-band channels" (Paragraphs 0025-26) However, the reference is silent with respect to "simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network."

In the similar field of endeavor, gray teaches "simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network." (Paragraphs 0005, 0065-66, and 0113) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger and Grauch, the combination by providing " simultaneously sending communications and content between the hub and a media network node using Internet Protocol-based local area network" for the common knowledge purpose of providing services to multiple equipments within customer premises without minimal delay.

Regarding claim 25, Kliger teaches everything claimed (see claim 24). The reference teaches "a physical connection between the computing hub and the set-top box comprises a coaxial cable." (Paragraphs 0021, and 0024) However, the reference is silent with respect to "physical connection between the computing hub and a media network node comprises an Ethernet cable." However, the examiner take OFFICIAL

NOTICE of the fact that it was well known in the art at the time invention was made to modify by specially providing it with " physical connection between the computing hub and a media network node comprises an Ethernet cable" for the common knowledge purpose of connecting networks and computer with a standard cable.

16. Claims 29-32, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kliger, in view of Akiyama.

Regarding claims 29 and 56, Kliger teaches everything claimed (see claim 14). Kliger teaches "multimedia content to be sent from the computing hub to the set-top box." (Kliger: Paragraphs 0021-23) However, the combination is silent with respect to "sent content is encrypted."

In the similar field of endeavor, Akiyama teaches "sent content is encrypted" (Paragraphs 0093, and 101). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger by providing "sent content is encrypted" for the common knowledge purpose of preventing illegal copying of the data content sent to customers.

Regarding claim 30, Kliger teaches everything claimed (see claim 29). However, the reference is silent with respect to "a content protection decrypter to decode encrypted content using a low processing power function of the set-top box."

In the similar field of endeavor, Akiyama teaches "a content protection decrypter to decode encrypted content using a low processing power function of the set-top box" (Paragraphs 0101-102, 0229-230) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kliger by providing " a

content protection decrypter to decode encrypted content using a low processing power function of the set-top box" for the common knowledge purpose of preventing illegal copying of the data content sent to customers as achieving power savings.

Regarding claims 31 and 57, Kliger teaches everything claimed (see claim 30). The reference is silent with respect to "the computing hub sends multiple scrambled content streams and a key to the set-top box, wherein the set-top box uses the key to derive content from the multiple scrambled content streams."

In the similar field of endeavor Akiyama teaches " the computing hub sends multiple scrambled content streams and a key to the set-top box, wherein the set-top box uses the key to derive content from the multiple scrambled content streams.(i.e. multiple packets can be unscrambled to achieve digital services using key) " (Paragraphs 0100-102) Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the combination by proving " the computing hub sends multiple scrambled content streams and a key to the set-top box, wherein the set-top box uses the key to derive content from the multiple scrambled content streams ", as taught by Akiyama, for purpose of preventing illegally copying of the data content sent to customers.

Regarding claim 32, Kliger teaches everything claimed (see claim 30). The reference is silent with respect to "the computing hub sends two scrambled content streams and a binary sequence key to the set-top box, wherein the set-top box uses the digits of the binary sequence key to distinguish which of the two scrambled program streams has current unscrambled content."

In the similar field of endeavor, Akiyama teaches "the computing hub sends two scrambled content streams and a binary sequence key to the set-top box, wherein the set-top box uses the digits of the binary sequence key to distinguish which of the two scrambled program streams has current unscrambled content", as taught by Akiyama, for purpose of sending content data to subscribers based on their channel contract information.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KUNAL LANGHNOJA whose telephone number is (571)270-3583. The examiner can normally be reached on M-F 9 A.M- 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Scott Beliveau can be reached on 571-272-7343. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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